

Appl. No. 10/753,253
Reply to Office Action of March 10, 2005

Attorney Docks: No. 2003-0440 / 24061.081
Customer No. 42717

REMARKS

Claims 1-20 are currently pending in the application. In view of the remarks that follow, Applicants respectfully request reconsideration of the application.

Independent Claim 1

Independent Claim 1 stands rejected under 35 USC §103 as obvious in view of Nishitani U.S. Patent No. 6,414,280. This ground of rejection is respectfully traversed. In this regard, the PTO recognizes in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Nishitani fails to establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for the mutually exclusive reasons that are discussed below.

THE REJECTION FAILS TO COMPLY WITH PTO REQUIREMENTS

MPEP §706.02(j) explains that an examiner must satisfy four specific requirements in order to establish a *prima facie* case of obviousness under 35 U.S.C. §103. In particular, MPEP §706.02(j) specifies that:

35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

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- (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
- (B) the difference or differences in the claim over the applied reference(s),
- (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and
- (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

In the present situation, the §103 rejection of Claim 1 fails to satisfy three of these four requirements, for reasons that are discussed separately below.

First, the rejection fails to satisfy requirement (B). In this regard, it should be noted that the paragraph appearing at lines 3-9 on page 3 of the Office Action discusses only limitations that appear in some dependent claims, and thus has nothing to do with the rejection of independent Claim 1. The only paragraph that discusses the reason for the rejection of Claim 1 is the paragraph that bridges pages 2-3 of the Office Action. In this paragraph, the Office Action identifies portions of Nishitani that are believed to be relevant to Claim 1. This satisfies the first of the four requirements above (requirement A). However, this paragraph never identifies any difference between Nishitani and the subject matter of Claim 1, and therefore fails to satisfy requirement (B).

The paragraph bridging pages 2-3 also fails to satisfy requirement (C), because it never identifies any proposed modification to Nishitani that would be needed to arrive at the subject matter of independent Claim 1.

The paragraph bridging pages 2-3 also fails to satisfy requirement (D), because it never discusses why a person of ordinary skill in the art would be motivated to make any modification

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to Nishitani in order to meet the subject matter of independent Claim 1..

Applicants therefore respectfully submit that the §103 rejection is defective, because it fails to satisfy three of the PTO's four specific requirements for a proper §103 rejection. Applicants are not able to clearly understand the §103 rejection, because the PTO requires that every §103 rejection must include several specific items of information, and the present Office Action does not provide all of that required information. In particular, the Examiner has not identified (1) how Nishitani differs from Claim 1, (2) how Nishitani would need to be modified in order to meet Claim 1, and (3) why a person skilled in the art would be motivated to make that particular modification. Applicants are not required to engage in guesswork where, as here, the Examiner fails to provide all of the information that the PTO requires in every §103 rejection, and thus fails to establish a *prima facie* case of obviousness. Instead, as pointed out in MPEP §2142, "If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness". For this reason alone, it is respectfully submitted that the pending §103 rejection of Claim 1 is defective and must be withdrawn, and notice to that effect is respectfully requested.

NISHITANI DOES NOT DISCLOSE WHAT THE OFFICE ACTION SAYS IT DOES

Independent Claim 1 includes limitations that recite:

a temperature sensor configured to detect the process
chamber temperature profile;

a compensation thermal control unit (CTCU) configured to
determine variation between the process chamber temperature
profile and a desired temperature profile; and

a compensation heating element configured to alter the
process chamber temperature profile in response to the variation
detected by the CTCU.

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Persons skilled in the art will recognize that this is a simple closed-loop or "feedback" control system, where a temperature sensor measures the actual temperature in a process chamber, the measured temperature is compared to a desired temperature to determine if there is a difference, and then a heating element is used (if necessary) to increase the actual temperature in a manner that decreases the calculated difference. This is not disclosed in Nishitani.

More specifically, in lines 14-15 on page 2, the Office Action notes that Nishitani discusses the use of thermocouples as temperature sensors (lines 44-45 in column 16 of Nishitani). This is true, but Nishitani does not use these temperature sensors in the same manner as the temperature sensors recited in Applicants' Claim 1. First, the temperature sensors of Nishitani are not active during normal operation of Nishitani's process chamber, when wafers are being processed. Instead, Nishitani points out at lines 54-56 in column 16 that "during an actual substrate treatment step . . . the temperature sensors have been dismantled and are not used any longer". In other words, Nishitani uses the temperature sensors only for advance setup of the processing chamber. And even during this advance setup, Nishitani does not use the temperature sensors for any closed loop control. Instead, Nishitani turns on some heating elements, and then simply monitors the temperature sensors in order to determine when the processing chamber reaches a desired temperature, and thus the time interval from when the heating elements were turned on until the desired temperature was reached. This is a purely open loop approach, and occurs solely during advance setup, before actual processing of any wafers. Later, when wafers are actually processed, the temperature sensors are disabled, and Nishitani uses a different open-loop approach, where the heating elements are turned on for a pre-determined time without any measurement of any actual temperature by any temperature sensor. Neither the setup nor the actual wafer processing involves anything comparable to the recitation in Applicants' Claim 1 of "a compensation thermal control unit (CTCU) configured to determine variation between the process chamber temperature profile and a desired temperature profile; and a compensation heating element configured to alter the process chamber temperature profile in response to the

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variation detected by the CTCU". Consequently, Nishitani does not disclose what the Office Action says it does. It is therefore respectfully submitted that Nishitani fails to fulfill its intended role in the §103 rejection, and that the §103 rejection is therefore defective. For this reason alone, it is respectfully submitted that the §103 rejection of Claim 1 must be withdrawn, and notice to that effect is respectfully requested.

THE PRIOR ART MUST TEACH ALL CLAIM LIMITATIONS UNDER §103

The MPEP repeatedly emphasizes the requirement that, in order to establish obviousness under §103, "the prior art reference (or references when combined) must teach or suggest all the claim limitations" (emphasis added). The PTO considers this requirement to be important, as evidenced by the fact that this exact language appears at a number of different locations in the MPEP, for example in each of MPEP §706.02(j), MPEP §2142, and MPEP §2143. In the present application, the §103 rejection is based solely on Nishitani. As noted above, the Office Action relies on the fact that Nishitani mentions temperature sensors. However, Nishitani's temperature sensors are not used in a manner that is even remotely comparable to what is recited in Applicants' Claim 1. Moreover, Nishitani has nothing comparable to the recitation in Applicants' Claim 1 of "a compensation thermal control unit (CTCU) configured to determine variation between the process chamber temperature profile and a desired temperature profile; and a compensation heating element configured to alter the process chamber temperature profile in response to the variation detected by the CTCU". The §103 rejection thus fails to establish obviousness, because Nishitani fails to satisfy the requirement that it must "teach or suggest all the claim limitations" (emphasis added). Therefore, for this independent reason alone, it is respectfully submitted that Claim 1 is not obvious under §103 in view of Nishitani, and notice to that effect is respectfully requested.

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NO MOTIVATION IS GIVEN FOR ANY MODIFICATION OF NISHITANI

Even assuming that the foregoing arguments do not apply (which is clearly not the case), there is yet another independent reason why the proposed §103 rejection is defective. In this regard, MPEP §2142 provides that:

To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

In addition, MPEP §2143.01 provides at that:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

As discussed above, the present Office Action fails to mention any modification of Nishitani that would be needed in order to meet the subject matter of Claim 1, and also fails to offer any motivation for making such a modification. The present §103 rejection of Claim 1 is therefore incomplete, because it fails to demonstrate the motivation that is required by the MPEP.

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Accordingly, for this independent reason alone, it is respectfully submitted that Claim 1 is not rendered obvious under §103 by Nishitani, and notice to that effect is respectfully requested.

In view of the foregoing discussion, it is respectfully submitted that the Office Action fails to establish a prima facie case of obviousness with respect to Claim 1, for several independent reasons that are discussed separately above. It is therefore respectfully submitted that Claim 1 is not rendered obvious under §103 by Nishitani. Accordingly, Claim 1 is believed to be allowable, and notice to that effect is respectfully requested.

Independent Claims 16 and 17

Independent Claim 16 includes limitations that recite:

- a temperature sensor configured to detect the process chamber temperature profile;
- a mechanism to determine variation between the process chamber temperature profile and a desired temperature profile; and
- a compensation heating element configured to alter the process chamber temperature profile in response to the variation detected by the mechanism.

Independent Claim 17 includes limitations that recite:

- detecting the process chamber temperature profile;
- determining a variation between the process chamber temperature profile and the desired temperature profile for the process chamber; and
- adjusting power delivered to a compensation heating element based on the variation.

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Independent Claims 16 and 17 each stand rejected under 35 USC §103 as obvious in view of Nishitani. The explanation given in the Office Action is exactly the same explanation given for the §103 rejection of Claim 1. The rejections of Claims 16 and 17 are both respectfully traversed. More specifically, for reasons similar to those discussed above in association with Claim 1, it is respectfully submitted that the Office Action fails to establish a prima facie case of obviousness with respect to either of Claims 16 and 17, and that Claims 16 and 17 are therefore not rendered obvious under §103 by Nishitani. Consequently, Claims 16 and 17 are believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2-15 and Claims 18-20 respectively depend from Claim 1 and Claim 17, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claims 1 and 17.

Conclusion

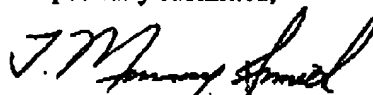
Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

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Although Applicants believe that no fee is due in association with the filing of this Response, the Commissioner is hereby authorized to charge any additional fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP.

Respectfully submitted,



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Enclosures: None

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